DOCUMENT RESUME

ED 223 569 SP 021 329

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TITLE Synthesis of Selected Research on Teacher Findings. Report No. 9009.
INSTITUTION Texas Univ., Austin. Research and Development Center for Teacher Education.
PUB DATE Sep 81
NOTE 31p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Class Organization; *Classroom Environment; *Classroom Research; *Classroom Techniques; Elementary Secondary Education; Student Behavior; *Teacher Behavior; Teacher Characteristics; *Teacher Effectiveness; Teacher Response; *Teaching Methods; Teaching Styles

ABSTRACT

An overview of research on elementary secondary classroom teaching presents a synthesis of findings from large-scale, classroom-based studies on teacher effectiveness. Three sets of major research efforts, dealing with classroom management and organization, systematic instruction, and effective instruction, were selected for review. Certain variables appeared to relate to student achievement: (1) work-oriented learning environment; (2) sufficient amount of time allocated to academic tasks; (3) warm and supportive classroom environment; (4) well-organized classroom; (5) close monitoring of students and active teacher participation; (6) quick teacher response to misbehavior; (7) systematic instruction pattern involving careful preparation of students for new material; (8) reasonably brisk instructional pace coupled with active information giving and receiving between teacher and students; (9) consistent teacher feedback on student performance; (10) opportunity for individual practice but with this individual time limited so that students stay actively involved with the class; (11) teacher encouragement of interactions where students are expected to participate and be challenged but still be successful; and (12) carefully organized instructional activities to both motivate students and provide appropriate practice in the lesson. Selected variables from these studies are documented in tabular form, and a profile is presented of an effective teacher. Lists of 11 reference notes and 11 references are included. (JD)

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SYNTHESIS OF SELECTED RESEARCH ON TEACHING FINDINGS

Susan Barnes

Report No. 9009

Research in Teacher Education Division

Gary A. Griffin, Program Director

September 1981

U.S. DEPARTMENT OF EDUCATION
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Synthesis of Selected Research on Teaching Findings

What is an effective teacher? This question may be the central question in educational research. Parents send their children to school and teachers teach those same children under the assumption that students will learn from the teachers. Although the act of teaching has often been studied, evidence to support the assumption that teaching affects learning has only recently been provided by educational research. This paper provides a brief background of research on teaching and presents major findings from recent large-scale, classroom-based studies. Limitations of the studies are noted and implications for use of the findings in classrooms are discussed.

Research on Teaching Effectiveness

Past research on teaching provided interesting information to the researcher which was of little help to the classroom teacher. Generally studies conducted during the 1930's focused on teacher characteristics such as age or schooling while studies conducted during the 1960's focused on interactions between the teacher and students (Rosenshine, 1980). Public confidence in schools and teachers during the late 1960's and early 1970's was shaken by the publication of several books which questioned whether teachers or schools could realistically be expected to influence learning (Coleman, 1966; Mayeske,et al., 1966; Mosteller & Moynihan, 1972). With these controversies as impetus some researchers in the 1970's decided to investigate the fundamental assumption, that teachers affect learning, through the basic scientific techniques of observation and description. The resulting line of research has generally been referred to as "teacher effectiveness research" (Medley, 1980).

In these studies teachers and students in a variety of settings were observed for a period of time and their behaviors recorded. Students then took standardized tests at the end of the school year. From these observational records, teacher behaviors which related to student learning as measured by these standardized tests were then identified. An operational definition of the "effective teacher" has emerged from this line of research. The "effective teacher" is the teacher whose classes regularly score higher on standardized achievement tests than do classes of other teachers of similar students after entering differences among classes are statistically removed (Brophy & Evertson, Note 1, Good & Grouws, 1977). In the most recent stage of teacher effectiveness research, a few experimental studies have been and are currently being conducted to test various programs of staff development at the classroom practitioner level and to test whether the effects of these programs will still result in increased achievement scores (Good & Grouws, Note 2; Stallings, Needels, & Stayrook, Note 3). Significant results in these studies at last provide support for the prime assumption that teaching affects learning.

At the present some effective behaviors for some grades and some subjects and with some groups of students have been identified and tested. Certain dangers do exist for misuse and overgeneralization of the findings from teacher effectiveness research. Most studies produced correlational results and the researchers themselves have been careful to point out the limitations of this type of research. Consumers are cautioned not to assume causal relationships between teaching behaviors and achievement. Because the researchers were unable in most cases to control many variables that impact upon achievement, the findings cannot be used as recipes for successful teaching. Consumers have also been cautioned not to overgeneralize even

these correlational relationships to new grade levels or subjects or for all types of students since some evidence, as well as common sense, suggests that these factors interact with effective behaviors (Brophy & Evertson, Note 1). Keeping these limitations in mind, attention will now be given to specific findings in the broadly-defined areas of learning environment, management of behavior, classroom instruction, and teaching style.

Criteria for selection of research studies

Studies included in this review meet the following criteria: (1) research methodologies can be verified as being procedurally rigorous and not open to interpretive question, (2) findings emerge from "real" classroom settings rather than laboratory settings, (3) findings are amenable to precise and clear translations to practitioners, and (4) the findings are ones which relate directly to demonstrable concerns and/or problems of teachers and teacher educators (Griffin, Note 4). Recognized experts in the field were also consulted and their recommendations of studies which meet these criteria considered.

Descriptions of selected studies

Three sets of major research efforts provide most of the information reported in this synthesis. The major topics of interest in one group of studies are management and organization of the classroom. The work of Jere Brophy and Carolyn Evertson on the Correlates of Effective Teaching Project began with correlational studies in the second and third grades. Other studies based upon their work eventually moved into other grades and subjects, including an experimental study in reading at the first grade level and a descriptive study in math and English at the junior high level.

The second set of studies which began with the work of Tom Good and Douglas Grouws on the Missouri Mathematics Effectiveness Project are

Table 1
Descriptions of selected studies of research on teaching

Researchers	Date of Publication of Findings	Grade	Content	Criterion Measures	Type of Study
1. Anderson, Evertson, and Brophy	1979	1	Reading	Metropolitan Achievement Test	experimental
2. Brophy and Evertson	1974	2,3		Metropolitan Achievement Test	correlational
3. Emmer, Evertson, and Anderson	1980	3		California Achievement Test	correlational
4. Evertson, Anderson, and Brophy	1978	7,8	Math English	California Achievement Test	correlational
5. Evertson, Emmer, and Brophy	1980	7,8	Math	content test (experimenter constructed)	correlational
6. Good and Grouws	1977	4	Math	Iowa Test of Basic Skills	correlational
7. Good and Grouws	1979	4	Math	Science Research Associates Achievement Test, content test (experimenter constructed)	experimental study I
8. Good and Grouws	1981a	6	Math	SRA Achievement Test, problem-solving test	experimental study II
9. Good and Grouws	1981b	[illegible]	Math	SRA Achievement Test, problem-solving test (experimenter constructed)	experimental study III
10. McDonald and Elias	1976	2,5	Reading Math	California Achievement Test	evaluation
11. Soar and Soar	1972	K,1		Metropolitan Readiness Test Early Childhood Inventory Preschool Inventory	evaluation

Researchers	Date of Publication of Findings	Grade	Content	Criterion Measures	Type of Study
12. Stallings and Kaskowitz	1974	1,3	Reading Math	Raven Problem-Solving Test Pupil Responsibility (IAR)	evaluation
13. Stallings	1978	7-12	Reading	California Test Basic Skills	correlationa
14. Stallings, Needels, and Stayrook	1979	7-12	Reading	SRI adaption of California Achievement Test	experimental

correlational studies of teachers and students in third and fourth grade mathematics. Later, experimental studies based on these findings were conducted in sixth, eighth, and ninth grade math. Major emphasis in these studies has been on systematic instruction.

The third set of studies began with the work of Jane Stallings on the Follow Through evaluation of the Planned Variation programs. Data for the correlational study were collected for reading and math in grades 1 and 3. These findings served as a basis for extending research into the teaching of basic reading skills in grades 7-12. Both a correlational study and an experimental study were conducted at this level. The emphasis in these studies has been on a program of effective instruction in reading skills.

Other studies have contributed in some way to this synthesis. The work on the Follow Through evaluation in Florida by Robert Soar and Ruth Soar and the work by McDonald and Elias on the Beginning Teacher Evaluation Study contribute some important findings.

Caution on variable names. Due to the problems posed when various studies coin their own operational definitions for variables, some caution is advised in interpreting this compilation of findings. Efforts have been made to examine original coding and observation instruments in order to determine exactly what behaviors comprised a variable. In some cases, inferences were made which may, of course, be in error. The reader will notice that variable terms or descriptions may not be exactly those stated in an original report. This occurs because effort was made to reduce the multitude of variables to a more manageable number by combining categories which appeared identical or very similar but carried different labels across different studies.

Another problem involves the indication of variable significance in the tables prepared for this synthesis. For instance, in some cases researchers

on the first study in a set found significant relationships between a particular variable and student achievement. This relationship is noted in this synthesis in the appropriate table. In the next study of the set, researchers may have designed an experimental treatment based on these significant findings. It was felt that if that treatment was significant in increasing achievement, then the variable should again be indicated as significant on the appropriate table even if the researcher did not explicitly state that it was so in his report. The experimental study, in effect, added supportive evidence for the significance of that variable.

Selected findings on the learning environment

One area of teacher effectiveness research producing some of the most consistent findings has been research on the learning environment. Each study included in this review found positive relationships between classrooms broadly described as "work-," "task-" or "academically-oriented" and student achievement gains (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Evertson, Anderson, & Brophy, Note 5; Evertson, Emmer, & Brophy, Note 6; Good & Grouws, 1979; Good & Grouws, Note 7; Stallings & Kaskowitz, Note 8; Stallings, Note 9; Stallings, Needels, & Stayrook, Note 10). The terms, "work-," "task-," or 'academically-oriented," usually describe classrooms where teachers expect and require students to pay attention, to work persistently toward completion of assignments, to exhibit cooperative attitudes, and, in general, to concentrate on academic activities rather than socializing. The amount of time allocated to academic tasks has been significantly related to student achievement in several studies (Evertson, Anderson, & Brophy, Note 5; McDonald & Elias, Note 11).

This general description is composed of the collection of specific teacher behaviors found separately in different projects. These behaviors

Table 2. Selected variables from research on teaching related to the learning environm

	AEB	BE	EEA	EAB	EEB	GG77	GG79	GG81a	GG81b	SS	SK	S
Work-oriented atmosphere (task-oriented or academic focus)		+	+	+	+	+	+	(+)			+	+
1. allocates time for academics				+		+						
2. has high achievement expectations		+				+						
3. assumes role of instructional leader		+	+			+	+	(+)				+
4. assumes personal responsibility for learning		+	+									
5. communicates expected behaviors and attitudes		+	+			+						
Warm, supportive environment		+L[1]	+	+L		+	+	(+)				+
6. praises		+L		+	+	-					+	
7. displays confidence and enthusiasm				+								
8. accepts student contributions				+		+						
9. gives specific praise	+	+H[2]										
10. has individual, private contacts with pupils				+								
11. practices positive affect		+L			+							
12. engages in positive interactions												+
13. allows autonomy		+H										
14. has orderly classroom						+	+	(+)				

[1]Low Ability
[2]High Ability

include having "high achievement expectations" for students regardless of their entering ability levels (Brophy & Evertson, Note 1; Good & Grouws, 1977), assuming the role of "instructional leader," taking personal "responsibility for students' learning" (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1977), and "communicating expected behaviors and attitudes" explicitly to students (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980).

Another broad variable, "a warm, supportive environment," was also consistently found to be positively related to student achievement in most of the studies reviewed here (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Evertson, Anderson, & Brophy, Note 5; Good & Grouws, 1979; Stallings, Needels, & Stayrook, Note 10). To achieve this warm, supportive environment, some teachers "praise" students frequently when praise is deserved, "respect student contributions" to class (Evertson, Anderson, & Brophy, Note 5), and provide "specific praise" which is offered in an appropriate manner (Anderson, Evertson, & Brophy, 1979). Effective teachers are generally confident and enthusiastic (Evertson, Anderson, & Brophy, Note 5). Having a warm, supportive environment is apparently more beneficial for low socioeconomic status (SES) students who respond better to more "individual, private contacts" with the teacher (Brophy & Evertson, Note 1; Evertson, Anderson, & Brophy, Note 5) and to more positive "teacher affect" in general (Brophy & Evertson, Note 1). Stallings (Note 9) reports significant positive relationships between "all positive interactions" and student achievement and significant negative relations between "all negative interactions" and student achievement. Students of higher abilities can benefit from learning situations where the teacher allows them some "autonomy" (Brophy & Evertson, Note 1). Most students regardless of ability

level apparently benefit from teachers who maintain a basically "orderly classroom" (Good & Grouws, 1977; Good & Grouws, 1979) and do not allow a prevalence of "social" conversation (Stallings, Needels, & Stayrook, Note 10). The optimal limits for social conversation and creative disorder have yet to be established.

In summary, teachers who establish both a task- or work-oriented atmosphere in the classroom and a warm, supportive environment for their students are providing those students with a successful learning environment.

Selected findings on management of behavior

The findings related to management of behavior are organized here into those teaching behaviors that concern administration of the classroom, prevention of misbehavior, and reaction to misbehavior. The studies examined here essentially agree with Kounin (1970) that effective teachers actively seek to prevent misbehavior through anticipation of problems and planning to avoid those problems rather than waiting for misbehavior to occur and then disciplining the students.

Classroom administration

In the area of classroom administration the effective teacher is described as being "well-organized" (Stallings, Needels, and Stayrook, Note 10). Evidence that the teacher is well-organized comes from several observable behaviors. These include having "clear rules and procedures" which will probably be written and may be posted for students to read (Emmer, Evertson, & Anderson, 1980). Rules and procedures are so important to organization that they may be actually taught to the students using generally recognized principles of instruction where the teacher introduces the rules, gives a rationale for the rules, demonstrates and gives examples, monitors as the students practice the rule, provides feedback, and reteaches, if

Table 3. Selected variables from research on teaching related to management of behavior

	AEB	BE	EEA	EAB	EEB	GG 77	GG 79	GG 81a	GG 81b	SS	SK	S PI	P
Classroom Administration													
1. is well-organized				+M[1]								+	
2. has clear rules and procedures			+										
3. has written rules			+										
4. instructs pupils in rules and procedures			+										
5. begins class promptly			+										
6. moves students through transition quickly and smoothly		+L[2]			+								
7. has materials ready			+										
8. has classroom arranged for ease of movement and visibility			+										
Prevention of Misbehavior													
9. is actively involved with students or actively instructing			+	+M	+							+	
10. holds students accountable for behavior and successfully completed assignment			+	+M			+	(+)					
11. monitors classroom		+	+	+M									
12. signals appropriate behavior			+										
13. establishes eye contact			+										
14. uses a variety of rewards			+										
Reaction to Misbehavior													
15. responds quickly to misbehavior			+	+LE[3]	+							+	
16. corrects specific student	+	+H[4]	+										
17. cites specific rules			+										
18. consistency in enforcement					+								
19. use of milder, informative punishment		+											

[1] Math
[2] Low Ability
[3] English
[4] High Ability

necessary (Emmer, Evertson, & Anderson, 1980). Effective teachers are able to establish routines and procedures to guide and regulate pupil behaviors while still maintaining a desirable degree of flexibility in the classroom. Rules and procedures are used to reduce the complexity of the classroom for both students and teachers, not hamper the teacher's decision-making process during class.

When the time for class arrives, effective teachers treat that time as a valuable resource. These teachers begin class promptly and move students from one activity to another smoothly and quickly (Evertson, Emmer, & Brophy, Note 6; Brophy & Evertson, Note 1). To encourage this ease of transition, classrooms are arranged so that students may move to new areas or pick up needed supplies with as little disruption as possible to other students or the teacher. Effective teachers also take into account the need to see and be seen during all class activities. As a consequence, furniture is arranged so that all students can see blackboards, assignment sheets, or other areas used by the teacher when communicating with the class and the teacher can see all students most of the time (Emmer, Evertson, & Anderson, 1980).

In summary, the effective teacher-administrator decides which behaviors and attitudes are acceptable, designs classroom procedures and rules to foster those behaviors and attitudes, and actually teaches rules and procedures in an instructional setting. Students are surrounded by the attitude and supporting behaviors that indicate time is precious and not to be wasted by disruptions.

Prevention of Misbehaviors

The general behavior used by effective teachers to prevent student misbehavior is to be actively involved with the students for most of the classtime (Brophy & Evertson, Note 1; Evertson, Anderson, & Brophy, Note 5; Good & Grouws, 1977; Good & Grouws, 1979; Stallings, Note 9; Stallings, Needels, & Stayrook, Note 10). Effective teachers do not begin class with roll, give a short explanation of the day's lesson, make a long individual reading or seatwork assignment, and then settle down at the desk to grade papers or make lesson plans. Effective teachers provide active instruction (described in more detail in a later section) to much of the class and limit the time spent by students in seatwork (Evertson, Anderson, & Brophy, Note 5). When effective teachers do make seatwork assignments, students are reminded that they are accountable both for their behavior and their assignment (Emmer, Evertson, & Anderson, 1980; Evertson, Anderson, & Brophy, Note 6; Good & Grouws, 1979). The effective teachers monitor the classroom carefully to check for both success in the task and appropriate behavior (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Evertson, Emmer, & Brophy, Note 6; Good & Grouws, 1979; Stallings, Needels, & Stayrook, Note 10). However, they do not become involved with individuals to the exclusion of the rest of the classroom (Stallings, Needels, & Stayrook, Note 10).

Effective teachers tend to respond with certain behaviors when they spot problems beginning to develop. Emmer, Evertson, and Anderson (1980) found that effective teachers may "signal the appropriate behavior" by using a previously taught signal or sign to warn students when they are getting off-task, "establish eye contact" with potentially disruptive students, and use a "variety of rewards" to provide positive reinforcement to those

students who successfully comply with rules and procedures. In summary, effective teachers try to prevent misbehavior by maintaining active involvement with their students even during seatwork, and reacting to problem situations as they are developing.

Reaction to Misbehavior

Despite the best classroom organization and efforts in prevention, misbehavior by students sometimes occurs. When this happens, effective teachers are quick to respond. This is an important behavior since some styles of discipline suggest ignoring misbehavior. Effective teachers not only react, they usually stop misbehavior quickly (Emmer, Evertson, & Anderson, 1980; Evertson, Emmer, & Brophy, Note 6; Stallings, Note 9).

The effective teachers name specific students rather than refer to the whole class when they act to stop misbehavior. They cite specific rules which are being broken rather than making general requests for order (Emmer, Evertson, & Anderson, 1980). When a rule is broken, effective teachers are "consistent" in enforcement (Evertson, Emmer, & Brophy, Note 6) and tend to use "milder, more informative" forms of punishment (Brophy & Evertson, Note 1). In summary, the effective teachers react to misbehavior promptly, focus on specific students and rules, and enforce rules consistently.

Selected findings in classroom instruction

The findings related to classroom instruction are organized into teaching behaviors that prepare students for the lesson, present the content of lesson, enable students to practice after the presentation, and evaluate student learning. Most of the studies examined for this synthesis support what Good and Grouws (1979) have called a "system of instruction."

Table 4. Selected variables from research on teaching related to classroom instruction

	AEB	BE	EEA	EAB	EEB	GG 77	GG 79	GG 81a	GG 81b	SS	SK	SP
Preparing Students for the Lesson												
"Systematic Instruction"						+	+				+	
1. secures students' attention before beginning		+										
2. states objectives			+									
3. gives/seeks rationale for lesson	+		+				+	(+)				
4. reviews previous content							+	(+)				
Teacher Presentation of Lesson												
5. actively presents new material				+M[1]		+	+				+	+
6. provides clear presentations		+	+		+	+	+					
7. presents material in small steps		+										
8. engages in discussion/recitation				+M							+	
9. maintains brisk pace		-L[2] +H[3]		+M		+						
10. maintains active participation by students in academics	+	+	+		+	+					+	+
11. asks questions that students answer with higher degree of success		+										
12. varies cognitive level of questions		+H		+M	+							
13. has highly focused learning tasks										+C[4]		
14. has moderately focused learning tasks										+AC[5]		
15. conducts controlled practice over new material	+	+					+	(+)				

[1] Math
[2] Low Ability
[3] High Ability
[4] Concrete tasks
[5] Abstract/Complex tasks

Table 4. Continued

	AEB	BE	EEA	EAB	EEB	GG 77	GG 79	GG 81a	GG 81b	SS	SK	S PI	P
16. monitors responses for correctness	+	+					+	(+)					
17. provides feedback													
positive feedback											+	+	
negative feedback											+	-	
academic praise				+									
nonevaluative feedback	+	+			+	+					+	+M	
supportive correction	+	-L									+	+M	
process feedback	+					+	+						
18. checks for understanding of assignment	+	+L											
Student Practice After Presentation													
19. gives common seatwork assignments						+	+	(+)					
20. monitors seatwork	+	+L	+		+		+	(+)					
21 works with individuals				+L E6									
22. holds students accountable for assignment			+				+	(+)					
23. assigns homework		+H			+	+	+	(+)					
Evaluation of Student Learning													
24. holds students accountable for reasonable work standards			+										
25. checks homework						+	+	(+)					
26. gives frequent quizzes												+L	

[6]English

Preparing students for the lesson

Part of a systematic instruction pattern involves preparing students for a new lesson. Effective teachers begin with the basics, securing students' attention before proceeding with the lesson (Brophy & Evertson, Note 1). From this point effective teachers use one of several strategies including "stating objectives of the lesson clearly" and explicitly for students (Emmer, Evertson, & Anderson, 1980), giving a rationale (Anderson, Evertson, & Brophy, 1979; Emmer, Evertson, & Anderson, 1980; Good & Grouws, 1979), or "reviewing" content of previous lessons needed for the upcoming presentation (Good & Grouws, 1979). These strategies apparently motivate the students toward academic achievement and orient the students to a particular subject at a particular time. In summary, the effective teacher makes sure the students are paying attention and have some idea, not only of what they are going to do, but why they are going to do it.

Teacher presentation of the lesson

When effective teachers conduct a lesson over new material, they tend to take an active part in presenting that material (Evertson, Anderson, & Brophy, Note 5; Stallings, Note 9; Good & Grouws, 1979). Effective teachers are "clear in their presentation" of content (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Evertson, Emmer, & Brophy, Note 5; Good & Grouws, 1977; Good & Grouws, 1979) and present that material in small steps, especially when they are teaching low ability students (Brophy & Evertson, Note 1). Often the teacher presentation involves teacher-led "discussion" (Evertson, Anderson, & Brophy, Note 5; Stallings & Kaskowitz, Note 8; Stallings, Needels, & Stayrook, Note 10) and "pupil recitation" (Stallings & Kaskowitz, Note 8) rather than lengthy lecturing by the teacher. Apparently the effective teacher attempts to expose students to the new material, move

along at a reasonably "brisk pace," and maintain "active participation by the students" simultaneously (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980; Evertson, Emmer, & Brophy, Note 6; Good & Grouws, 1977; Stallings, Note 9). During discussion/recitation, effective teachers ask questions that students can answer with a "high degree of success" (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980). Effective teachers "vary the cognitive level" of the question according to the ability level of the students (Brophy & Evertson, Note 1; Evertson, Emmer, & Brophy, 1980) or the instructional goal. Soar and Soar (1972) found that students profited from "highly focused learning tasks" when the measure of success was concrete learning. However, when the measure of success was abstract, complex learning, students profited more from "moderately focused learning tasks" and "information giving and receiving" between teacher and students.

After the presentation of new material the effective teachers often conduct some form of "controlled practice" over the new material with the whole class (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, Note 1; Good & Grouws, 1979; Stallings, Needels, & Stayrook, Note 10). The teachers "monitor student responses" carefully to be sure that students are performing successfully. While students practice, the effective teachers can "provide feedback" on student performance. Stallings and Kaskowitz (Note 8) found that both "positive feedback" and "negative feedback" were positively related to achievement in elementary grades but in secondary basic skills classes "negative feedback" was negatively related (Stallings, Note 9). In other studies feedback took the form of "praise" for academic performance (Evertson, Anderson, & Brophy, Note 5) or simple "nonevaluative feedback" (Good & Grouws, 1977). In the case of incorrect responses by students

effective teachers provide "supportive" but corrective feedback (Anderson, Evertson, & Brophy, 1979; Stallings & Kaskowitz, Note 8; Stallings, Note 9; Stallings, Needels, & Stayrook, Note 10) or provide "process feedback" showing the student how to achieve the correct answer (Good & Grouws, 1977). The use of controlled practice during or after the presentation allows the effective teacher to catch errors early before students begin work on their own (Anderson, Evertson, & Brophy, 1979; Brophy & Evertson, Note 1). By attention to student understanding of both content and teacher directions at this point in the lesson, effective teachers increase the opportunities for students to be successful in subsequent seatwork and homework (Brophy & Evertson, Note 1; Good & Grouws, 1979). In summary, effective teachers actively lead instruction while maintaining both student participation and student expectations for success. The effective teachers also have students practice new material while the teacher checks for student understanding of both content and directions before the teacher allows students to begin individual seatwork.

Student practice after the presentation

When the effective teacher is reasonably satisfied that students understand the content, students are given a common seatwork assignment for a small portion of the class period (Evertson, Anderson, & Brophy, Note 5; Good & Grouws, 1979; Stallings, Needels, & Stayrook, Note 10). During seatwork the effective teachers continue to monitor the class and physically move about the room (Good & Grouws, 1979). They do not take seatwork as an opportunity to catch up on grading or next week's lesson plans (Good & Grouws, 1977). If a few students are still confused, the effective teacher gets the class started on the assignment and then works with individuals. Students are held "accountable" for both their assignment and their use of

Table 5. Selected variables from research on teaching related to teaching style

	AEB	BE	EEA	EAB	EEB	GG 77	GG 79	GG 81a	GG 81b	SS	SK	S PI	S P
Interaction With Students													
1. discusses lesson/questions with students (academic)				+M[1]							+		
2. interacts with individuals during lesson		+		+M									
3. calls on specific students		+										+	
4. calls on students in a systematic manner		+											
5. accepts volunteers				+M		+							
6. accepts "call outs"		-H		-H[2] +L[3]									
7. waits for some response				+L M								+	
8. probes, rephrases, questions, prompts		+L											
9. provides answer to question		+											
10. accepts substance of response		+											
11. maintains brisk pace during lesson		-L +H		+M		+							
12. varies question levels				+M									
13. asks process questions				+M	+								
14. stresses students' understanding of meaning						+	+	(+)					
15. has high rates of success for student answers		+											
Organizing Instructional Activities													
1. relates content to student interest and background			+										
2. follows prescribed curriculum		+H											
3. moves briskly through curriculum				+M									

[1]Math
[2]High Ability
[3]Low Ability

Table 5. Continued

	AEB	BE	EEA	EAB	EEB	GG 77	GG 79	GG 81a	GG 81b	SS	SK	S PI	SNS PII
4. relies on workbooks/textbooks											+	+	
5. uses materials matched to ability levels of students											+		
6. uses large group or whole class instruction							+	(+)				+	+
7. uses small group instruction											+	+L	+
8. has students read aloud												+L	+
9. ability grouped class												+L	

time during seatwork (Good & Grouws, 1979; Note 7). Effective teachers do not usually make long seatwork assignments or long "silent" or "leisure" reading assignments (Stallings, Needels, & Stayrook, Note 10), but they do regularly assign some small amount of "homework" (Brophy & Evertson, Note 1; Evertson, Emmer, & Brophy, Note 6; Good & Grouws, 1977; 1979; Note 7) that provides students the opportunity for further drill and practice over the lesson. In summary, effective teachers provide individual practice opportunities, but limit the time students work individually and continue to stay actively involved with the class.

Evaluation of student learning

Although little attention has been given to this aspect of effective teaching, some few findings provide a partial description of effective teaching behaviors related to evaluation. Effective teachers not only assign homework but also hold students accountable for "reasonable standards of work" (Emmer, Evertson, & Anderson, 1980). The effective teachers often "check homework" orally during class and give "frequent quizzes" on the content (Stallings, Needels, & Stayrook, Note 10). Aside from these few findings, the important areas of evaluation of student learning by effective teachers remains undescribed.

The teacher who is an effective instructor gets student attention before the lesson, actively presents new material, has students practice until there is reasonable assurance they will be successful, assigns homework, and holds students accountable for both the assignment and use of class time.

Selected findings on teaching style

The findings on teaching behaviors related to teaching style are organized into teacher interactions with students during instruction and

organization of instructional activities. Findings on teaching style again reflect active involvement by the teacher as well as involvement by students.

Interactions with students

Effective teachers provide opportunities during instruction for extensive discussion or "questioning." This is one sanctioned way teachers allow students to receive teachers' attention (Evertson, Anderson, & Brophy, Note 5). Teachers may initiate participation by one of several methods - "calling on specific students in a systematic pattern" (Brophy & Evertson, Note 1), accepting "volunteers" (Evertson, Anderson, & Brophy, Note 5; Good & Grouws, 1977) or accepting "call outs" in low ability classes (Evertson, Anderson, & Brophy, Note 5) or middle ability classes (Good & Grouws, 1977). Effective teachers also "wait for some response" from students, especially low ability students (Brophy & Evertson, Note 1). If the student gives an incorrect response to the question, effective teachers may "probe," "rephrase," "prompt" (Evertson, Anderson, & Brophy, Note 5; Stallings, Note 9; Stallings, Needels, & Stayrook, Note 10) or "provide the correct answer" to the question (Brophy & Evertson, Note 1). If the student gives a partially correct response, the effective teacher "accepts the substance" of the correct parts of the answer, provides some feedback to the student, and moves the lesson along (Brophy & Evertson, Note 1). These teacher responses to student answers help maintain a "brisk pace" in class discussions (Evertson, Anderson, & Brophy, Note 5; Good & Grouws, 1979). A brisk pace is especially helpful to classes with higher ability students (Brophy & Evertson, Note 1). Effective teachers may ask questions of varying cognitive levels from simple, straightforward requests for verbatim recall to questions requiring students to state an opinion or process questions asking students to describe how they arrived at an answer (Evertson, Anderson, & Brophy, Note

5; Evertson, Emmer, & Brophy, Note 6; Good & Grouws, 1977). Effective teachers stress students' understanding of the meaning of the content in question rather than the form of the students' responses (Good & Grouws, 1977; 1979). When questioning students over the lesson, effective teachers ask questions which students can answer at high rates of success, 70% for high ability students and 80% for lower ability students (Brophy & Evertson, Note 1). In summary, effective teachers encourage interactions where students are expected to participate and to be challenged but still be successful.

Organized instructional activities

The effective teacher organizes instructional activities to provide students with activities that are interesting and meaningful and to use grouping patterns which fit the task. The effective teacher recognizes the basic importance of motivation for students. One teaching strategy associated with motivation is "relating class content to the interests of the students" (Emmer, Evertson, & Anderson, 1980). Effective teachers "follow prescribed curriculum" (Brophy & Evertson, Note 1), move briskly through that curriculum, especially with high ability students (Evertson, Anderson, & Brophy, Note 5), and rely heavily on "workbooks and textbooks" (Stallings & Kaskowitz, Note 8; Stallings, Note 9). In appropriate situations effective teachers use "special materials" which are matched to the ability level of the students, especially with low ability students (Brophy & Evertson, Note 1; Emmer, Evertson, & Anderson, 1980).

Most studies found strong positive associations between certain grouping patterns and student achievement. "Whole class" or "large group instruction" is the most prominent grouping pattern (Good & Grouws, 1979; Stallings & Kaskowitz, Note 8). In the report on Phase I of a project designed to teach

basic skills in secondary schools, Stallings (Note 9) reports positive relationships for "small group instruction" and students taking turns "reading aloud." Strong results related to grouping were also found for ability grouping by Stallings, Needels, & Stayrook (Note 10). Here low ability students did better in homogeneously grouped classes where instruction was at a slower pace but fast enough to maintain interest.

In summary, effective teachers carefully organize instructional activities to both motivate students and provide appropriate practice in the lesson. They also teach most lessons to the whole class and use small groups only for particular instructional purposes or subjects.

Summary

This background of research on teaching from large-scale, classroom-based studies provides a profile of one definition of an "effective teacher." The effective teachers in these studies tended to establish a work-orientation in the classroom while maintaining a warm, supportive environment. They also are well-organized and place much emphasis on management of the classroom in order to optimize the productive use of time. During class effective teachers stay actively involved with students to prevent misbehavior and intervene promptly to stop misbehavior. When presenting new material many effective teachers use a systematic instruction plan which includes gaining students' attention before beginning the lesson, making a clear presentation, allowing students to practice new skills, monitoring and providing feedback, assigning individual seatwork, and evaluating students' responses. Effective teachers generally interact with the whole class during classtime and move students through discussions at a brisk pace with a high level of student success.

From these results teacher educators can develop programs to train persons in the particular skills that have been demonstrated by effective teachers. These research findings support many common teaching practices and answer criticisms that educational research has no relationship to real classroom problems and situations. While there are other conceptions of good teaching which view teaching as an art or as a job requiring certain philosophical or psychological orientations, the purpose of this review was only concerned with recent findings in classroom-based research and not the assumptions underlying this particular approach to the study of teaching. At present if school emphasis is on achievement in basic skills as measured by standardized achievement tests, then this research provides teachers with behaviors that facilitate increases in achievement and still allow adaptation to fit particular classroom needs. Finally, these findings are guidelines for increased effectiveness and are not intended to be foolproof recipes for teaching.

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